ENVIRONMENT AGENCY RESPONSE
TO THE PERFORMANCE AND INNOVATION UNIT ENERGY REVIEW
NUCLEAR SCOPING NOTE

This response to the PIU's Nuclear Scoping Note should be read in conjunction with the Agency's main submission.

1. ENERGY - THE ENVIRONMENT AGENCY'S ROLE

The Agency welcomes the review of energy policy which it believes to be vital given the long lead-times involved in changes to the sourcing of energy supplies. Achieving a sustainable energy future will be one of the key challenges within the UK's overall objective of achieving sustainable development.

The Environment Agency regulates processes which account for approximately 50% of man-made greenhouse gas emissions. It also regulates the entire nuclear energy generating industry in England and Wales. Nuclear power generates insignificant quantities of greenhouse gases, but any assessment of its future role must take full account of the financial and environmental costs of radioactive waste management and storage and its regulatory framework.

2. THE AGENCY'S KEY RECOMMENDATIONS TO THE ENERGY REVIEW

We believe that the energy review process should aim to develop an aspirational goal for sustainable energy in the UK, and outline a comprehensive programme for delivering it.

We encourage the energy review to focus on the delivery of a highly efficient energy system with a substantially increased renewable energy contribution as the means for achieving its social, environmental and energy security objectives. Current policy measures are not delivering Government policy objectives, and the UK is failing to realise the economic and industrial opportunities associated with a low carbon economy.

Gas and electricity policy has focused too heavily on cutting prices, often at the expense of other priority objectives, such as reducing carbon dioxide emissions. This imbalance in policy focus must be addressed. The energy review should highlight that improving energy efficiency, as opposed to lowering prices, is invariably the best means of reducing energy service costs for consumers.

3. THE 'NUCLEAR GAP'

Currently nuclear power contributes approximately 25% of the UK's demands for electricity. The planned closure of Magnox and AGR power stations is summarised below:

Magnox	- all stations to close by 2011
AGR	- all stations forecast to close by 2023

On present plans and forecasts the current nuclear generating capacity of approximately 13 GW will be reduced to 1.2 GW (i.e. the capacity of the Sizewell 'B' PWR) by 2023.

Unless the UK's electricity demand can be reduced by 25% over the next twenty years, the gap left by the closure of nuclear power stations must be filled. The obvious options for closing this gap include:

- Reducing energy consumption
- Replace with renewable energy sources
- Replace by fossil fuel sources
- Replace with new nuclear generating capacity
- Replace by combinations of the above.

In considering what measures are practical to close the gap left by the phase out of present nuclear generation capacity, the Agency strongly supports policies where priority is given to the first two options above.

As the PIU has identified, the replacement of the nuclear generating capacity by gas or coal would adversely affect greenhouse gas emissions. It will not be possible for the UK to meet its likely post-Kyoto budget period commitments if the gap is filled mainly by gas or coal.

4. NEW NUCLEAR BUILD PROPOSALS

The Agency is aware of submissions made by British Energy and BNFL, which propose 'new build' programmes that would maintain a nuclear generating capacity of approximately 10 GW. These proposals envisage the location of new reactors on existing British Energy sites. If such suitable sites had to be selected, due consideration must be given to the issue of coastal erosion and the potential for rising sea levels from long-term climate changes. Should the Government's new energy policy include an ongoing role for nuclear power with the associated building of new reactors, the Agency would offer the following advice.

Government will have to consider the benefits and detriments of the complete new build programme, including fuel cycle, radioactive waste management and decommissioning aspects, and determine whether the programme is, generically, justified under the provisions of the Euratom Basic Safety Standards Directive.

To bring on stream replacement nuclear generating capacity during, say, the period 2015-2030, then work to develop designs, select sites and begin the planning process would need to be initiated during the next few years. Because of the short timescale, new nuclear stations would have to be based on an existing reference design. It would be worth

exploring the use of a common design with other countries, since this may provide scope for considerable cost reduction and other advantages.

Recently in, the absence of any design or construction of new nuclear facilities in the UK, the nuclear industry has rightly focused on improvements to liabilities management. Government should avoid any adverse effect on the management of the nuclear industry's legacy of wastes and decommissioning that might result from a switch of attention to a programme of new reactor capacity. If a new build programme were to be planned, potential benefits could include:

- maintenance of key nuclear skills in the UK for new build and liabilities
- the opportunity to reduce plutonium inventories through, for example, reactors capable of utilising mixed oxide (MOX) fuels.

A programme of stations capable of using MOX fuel could utilise the UK's inventory of stored plutonium to produce electricity. One attraction of pursuing this option would be to avoid continuing plutonium management costs. These costs could be offset against the costs of the power station programme. There would also be reduced demand for freshly mined uranium ore.

5. APPROVAL AND REGULATION OF NEW NUCLEAR CAPACITY

If a new build programme for nuclear power were to be selected, then the Agency believes that there would be considerable advantages (regulatory, as well as financial, design and operational) in having a common basic design for the main power station programme. There are likely to be further cost and other advantages in collaborating with other countries.

The Agency would advocate following a system of prior approvals:

- Justification of the proposed programme in advance of construction (for Government)
- Parallel tracking of the planning enquiries with permit considerations (see next bullet points)
- Consideration and approval, in principle, of the relevant generic designs throughout the design stages. (NII and EA)
- Application by the Operator for a discharge authorisation for each station to be made prior to construction. Any early authorisations would be reviewed by the Agency prior to operations commencing. (Operator/EA).

A single basic design for the main programme would make it easier for the Agency to establish a generic authorisation and determination process.

6. RADIOACTIVE DISCHARGES TO THE ENVIRONMENT

The Agency would ensure that the impact of any new nuclear plant on the environment and the general public was minimised in line with Government policy and statutory guidance.

The application of best available techniques to minimise radioactive discharges, together with modern reactor designs, would enable new reactors to be operated with very much lower radiological impacts than previous generations of reactors (e.g. Magnox and AGR).

7. RADIOACTIVE WASTE

The volume of solid radioactive wastes generated by nuclear power stations has been the focus of considerable attention. Progress has been made in this area, and each new generation of nuclear reactor design produces less solid radioactive waste than its predecessor. This is expected to continue. Submissions made to this review by the nuclear utilities indicate that a sixty year, 10 GW, nuclear programme based on new designs, would contribute an additional 10% to the UK's inventory of high level waste (there would be corresponding contributions to the intermediate and low level waste inventories). However, at the present there remains a substantive issue regarding disposal of high and intermediate level wastes and whether spent fuel from new stations would be reprocessed.

8. CONCLUSION / SUMMARY

The Environment Agency believes that the major focus of future energy policy should be reducing demand through energy efficiency improvements and encouraging sustainable and renewable energy sources. Without sufficient supporting measures, such objectives may not be achieved in time to close the gap presented by the current nuclear closure programme.

The role of nuclear power is clearly one of the key issues that the review will have to address. An assessment of the role, if any, to be played by nuclear power must take full account of the financial and economic costs of the management and storage of radioactive waste and the regulatory framework. It will also be vital to take account of the need to secure the consensus of the general public if a longer-term role for nuclear power is envisaged.

If there is to be new nuclear build, the Agency advocates the selection of a common basic reactor design for the main programme, on regulatory as well as financial, design and operational grounds. It notes that there are likely to be considerable advantages in international co-operation. The Agency would use its powers to ensure that any new nuclear power stations built in England and Wales are designed and operated with the minimum environmental impact.

ENVIRONMENT AGENCY
12 November 2001